

Crisis in the Bering Sea

The fire and explosion aboard a commercial fish processor.

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Lessons Learned from



A 180-foot distant water freezer longliner, the fish processing vessel *Galaxy* had recently been inspected by the American Bureau of Shipping.

On August 1, 2002, the vessel departed its home port of Seattle, Wash. on a three- to four-month trip to fish for Pacific cod in the Bering Sea. The trip was interrupted by a fire in one of its two main generators. The crew handled that fire-fighting effort quickly, with no casualties. The vessel arrived in Dutch Harbor in early October to replace a faulty generator. On October 12, the fish processing vessel left the port and headed to the fishing grounds near St. Paul and St. George Islands.

The next several days of fishing were uneventful. Over the six-day period from October 14 to 19, the crew caught and processed 80,000 to 100,000 pounds of product.

On October 20, 2002, the crew was retrieving long line gear in the Bering Sea, approximately 30 miles southwest of St. Paul Island. The temperature was about 35 degrees Fahrenheit and the water was 43 degrees Fahrenheit. The winds out of the north-northeast at 20 to 30 knots brought an occasional snow squall, with 12- to 15-foot seas. The vessel was holding position to finish processing the catch on board.

The Incident

At around 4:22 p.m. crew members saw smoke on several decks and notified the captain. The captain activated the fire alarm and the fire teams responded to the starboard side upper engine room hatch. The chief engineer went to the lower level entrance to the engine room, looking for the source of the smoke.

Nonessential personnel were instructed to evacuate to the aft upper deck or the forward main deck.

At the upper engine room hatch seven crew members were attempting to battle the fire. The chief mate opened the hatch and entered the space, wearing a self-contained breathing apparatus (SCBA). When the chief mate came out of the space, he stated the fire was "too much."

Actions Aboard

The chief engineer came to the same conclusion at his location in the lower level and decided to activate the fixed CO₂ system. He ran up two decks to inform the captain. He did not convey that information to the fire-fighting team.

Thinking the CO₂ system had been activated, the chief mate ordered several crewmembers to open exterior watertight hatches, to ventilate the smoke from the space in which they were standing. Two of the crew who were fire team members remained with the chief mate.

Smoke began to overwhelm the three fire team members, and they ran to the stern of the vessel and opened the gear setting hatch. The chief mate and the two fire team members asked crew members on the top deck to throw them lines. While the fire team was attempting to evacuate through the gear hatch, an explosion occurred. The force from the explosion ejected all three men through the hatch. Fortunately, several crew members saw the men thrown from the vessel and immediately threw line and buoys to them.

The chief engineer was attempting to discharge the CO₂ system when the explosion occurred. He was



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knocked off his feet, lost his flashlight and his bearings and did not succeed in discharging the system. He then crawled through the work deck, located stairs to the main deck, and found his way outside to join three crew members on the forward main deck.

Man Overboard

Meanwhile, the crew on the top deck threw a ring buoy to one of the crew in the water and pulled him up the entire height of the vessel.

A second crew member in the water also got a line and was being hauled up on the stern of the vessel by crew members. The 20-foot seas caused the vessel to pitch and swing him into the hull with such force that he was knocked unconscious. He let go but his leg was tangled in the line and he did not fall back into the water. Crew members then lowered him into the gear setting hatch he had been blown out of. The crewman found his way to the top deck several minutes later; he does not recall exactly how he got to the top deck.

The chief mate apparently was hurt during the explosion and, though he got to a life ring, he could not hold on and fell into the water during the crew's attempts to haul him back in.

Immediately after the explosion the three crew members that were sent up two levels, moved to the aft cargo hatch to retrieve survival suits from the bin located there. One of these three was the vessel's designated rescue swimmer. After donning his survival suit, he jumped into the water with a ring buoy and safety line to rescue the chief mate. The rescue swimmer swam through the 15–20 foot seas to the chief mate, and was able to reach him. However, the chief mate was unable to assist in his own rescue, and he slipped away from the rescue swimmer's grasp.

During this rescue attempt, the crew on the top deck managed to launch the starboard side life raft. Crew on board urged the rescue swimmer to swim to the

life raft, which he did. He was too exhausted by this time to pull himself into the raft. Realizing this, the chief engineer jumped into the raft to assist him. The chief engineer left instructions for the remaining crew to gather survival suits and buoys and get them to the bow of the vessel. Once in the raft, the engineer was being slammed and pinned against the hull of the *Galaxy* by the rough seas. After several attempts, he pulled the rescue swimmer into the raft.

Inside the raft, the chief engineer desperately tried to put together the plastic paddles so he could maneuver the raft. The paddle parts were duct taped together. The engineer's hands were cold and the survival suit severely limited his manual dexterity. He finally got the paddles assembled and used them to assist with moving the raft to the stern of the ship. However, the plastic paddles quickly broke.

Mayday

While the crew was occupied with the man overboard rescues, the captain returned to the wheelhouse to issue a mayday. Finding the wheelhouse filled with smoke and most materials in it either on fire or red hot, the captain made several forays into smoke-filled areas to locate a working radio. He received a severe burn to his arm in the process. He eventually found an emergency radio and sent a mayday signal to the Coast Guard LORAN Station St. Paul.

A second explosion and fireball from the engine room vents set the wheelhouse on fire. The new explosion separated the 21 crew members on the top deck from the four on the main deck, and from survival suits located on the main deck.

The captain knew how important the survival suits would be if they abandoned ship, so he made another attempt to acquire them for the crew on the top deck. In this attempt, he fell 20 feet from the wheelhouse to the forward main deck. He received additional burns and broke several ribs. Separated from the crew on the top deck, the captain was unable to direct the ship abandonment.

Abandon Ship

With the captain injured and other crew members injured or lost, the chief engineer, in the life raft, took over evacuation and directed the abandonment of the vessel. The raft was 35–50 feet below the level of the top deck and he had trouble convincing the crew on the top deck to jump, despite rapidly deteriorating conditions on the ship. Finally one person jumped into the raft and 11 others followed, jumping directly into the life raft alongside the burning vessel.

Two other crew members attempted to abandon ship via the life raft. One jumped, but landed in the water instead of the raft. The rough seas took him so far away from the raft so rapidly that the crew was unable to rescue him. He was in a survival suit and the crew hoped he would survive until help arrived. Another crew member, unwilling to jump 50 feet into a moving target, attempted to lower himself into the life raft by two lines he tied to himself. Unfortunately the lines were not long enough and he was trapped on the side of the burning hull too far away from either the raft or the deck for crew members to help. The lines eventually either broke or burned in two and the crew member went into the water. He was not wearing a survival suit, and his body was recovered about two hours after the explosions.

Once the 12 crew members from the top deck were onboard the raft, someone cut the sea painter and freed the raft from the *Galaxy*. The life raft then drifted by the four crew members stuck on the main deck, and one person jumped into it as it went by. The three remaining did not respond as quickly and the raft drifted away.

Back on the top deck, one crew member and a National Marine Fisheries Service observer onboard the craft jumped into the water after the raft had pulled away from the ship and the fire had come closer. The crew member, one of the three who had originally been ejected by the explosion, had a survival suit on but the observer did not. She jumped into the water, holding onto a life ring and wearing pajamas and a rain jacket. They attempted to swim to the raft but it moved too swiftly away from them. They stayed in the water, with the crew member keeping the observer's head out of the water for nearly two hours, before being recovered by a Good Samaritan vessel, the *Clipper Express*.

The Coast Guard Response

Once Coast Guard LORAN Station St. Paul received the Mayday from the captain, several rescue activities were put into motion. A fixed wing aircraft was launched from Air Station Kodiak. The Coast Guard broadcast information to all ships in the general vicinity. Responding to the call for assistance were fishing vessels the *Blue Pacific*, *Horizon* and *Clipper Express*. The *Blue Pacific* reported to COMMSTA Kodiak a visual sighting of the vessel with people still onboard.

A Coast Guard helicopter was dispatched and rescued three crew members from the top deck and two on the bow of the main deck. One person from the main deck jumped into the water and was rescued by the *Blue Pacific*.

After the crew was rescued, the Coast Guard continued searching for those missing for another 48 hours. After the search efforts for the missing concluded, efforts were then made to find the *Galaxy*, without success. As many hatches were open to the sea at its last sighting, it was presumed to have sunk.

Conclusions

The fire originated in the engine room, and though the exact source cannot be determined, there is no evidence the vessel's refrigeration system, hydraulic system, or equipment containing oxygen, acetylene, or propane caused or contributed to the explosion. All witness accounts describe a backdraft explosion.

The captain quickly activated the fire alarm and the fire team responded quickly. They did not, however, have the knowledge or training to recognize a backdraft explosion situation nor to deal with it. They also incorrectly determined that the CO₂ system was discharged, and their actions to ventilate the main deck probably contributed to the explosion.

The crew's response to the multiple man overboard incident was exceptional in view of the conditions and location of the crew. The rescue swimmer's individual actions to rescue the chief mate were extraordinarily heroic.

While the locations of the life rafts and survival suits on the *Galaxy* met both Coast Guard and ABS requirements, in this real-life situation, this proved problematic. The life raft installation was inadequate for quickly launching the rafts with minimal effort by the

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crew. The placement of the majority of the survival suits in a single location made them inaccessible to the largest group of crewmembers when the fire came between them. On commercial fishing vessels, life ring buoys are the primary equipment used to recover a man overboard. However, a life ring is not effective in recovering an injured person. The lines on the life ring buoys are of insufficient diameter to pull a ring buoy, with a person in it, through the water.

The plastic paddles intended for use with the life raft were rendered unusable by being duct taped together, were inadequate for maneuvering the raft in 15-foot seas, and broke while attempting to serve their purpose.

The Coast Guard responded in a timely and appropriate manner to this incident. The actions taken by LORSTA St. Paul to provide a communications watch during the Bristol Bay red king crab fishery and to serve as the initial response coordinator for this rescue were exceptional. The captain, after several attempts to find working equipment, finally issued the mayday over a VHF channel. Had LORSTA St. Paul not been offering this service, the rescue would have come much more slowly. The forward deployment of the CG6021 helicopter to Cold Bay, Alaska, also significantly improved the response time to the *Galaxy*.

The master and crew of the *Clipper Express*, *Blue Pacific*, and *Glacier Bay* were instrumental in the rescue and recovery of the crew from the *Galaxy*.

Lessons Learned

The lessons from the *Galaxy* casualty emphasize the value of both fire and abandon ship drills. It is essential that all crew know their roles during fires and other emergencies, are familiar with the location and operation of safety and rescue equipment, and can rapidly and readily assume their assigned duties.

One problem noted was that all emergency training is done in English. English was not the native language of nearly half of the crew aboard *Galaxy*. Safety training organizations approved by the Coast Guard should develop safety videos and training programs for non-English speaking commercial fishing crews to assure that all crew members are familiar with the emergency responsibilities and duties. Commercial fishing vessel owners and operators should provide

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drill instructor training for lead non-English speaking factory and fish processing personnel to ensure that all non-English speaking crew members know their emergency response duties.

Another issue is the lack of formal training for specialized positions. Currently no specific standards or training proficiencies exist for rescue swimmers, fire hose team members, or persons required to wear SCBA. These positions require wearing of special equipment and may require individuals to perform difficult or sometimes life-threatening duties.

The report also recommends that for vessels where it is the policy to notify the master of the vessel prior to discharging the CO₂ system, owners should install an independently powered emergency communication system between the wheelhouse and the CO₂ room to allow immediate notification.

The difficulty of launching the life raft from the vessel shows that fishing vessels need to install life raft arrangements that allow for the raft to be launched by a single person. Though one of the life rafts was inaccessible because of the fire, neither of them could be launched by a single person. Both life rafts required several crew members to remove them from the station and to launch. What is missing from current regulatory language is wording that ensures a life raft can be easily launched before the vessel sinks. Systems do exist that allow a single person to launch the life raft.

This casualty also showed the inadequacy of plastic life raft paddles currently approved for use in SOLAS A and SOLAS B rafts. The investigation recommends that the Coast Guard, through the International Maritime Organization develop regulations to require that life raft paddles in SOLAS A and SOLAS B rafts be designed of sturdier materials.

Subsequent to the investigation, the Seventeenth Coast Guard District recognized the extraordinarily heroic efforts of the ship's captain, chief engineer, the crew member who saved the fisheries observer, and the rescue swimmer. The Seventeenth District also recognized the efforts of the masters and crews of the *Blue Pacific*, *Glacier Bay*, and the *Clipper Express* with public service awards.

About the author: Ms. Betty Lynn Sprinkle is a free-lance writer living in Alexandria, Va. In her 25 years of writing, she has covered such diverse topics as the construction industry, health care, higher education, and employment for national trade magazines, medical newsletters, university publications, and the Washington Post.